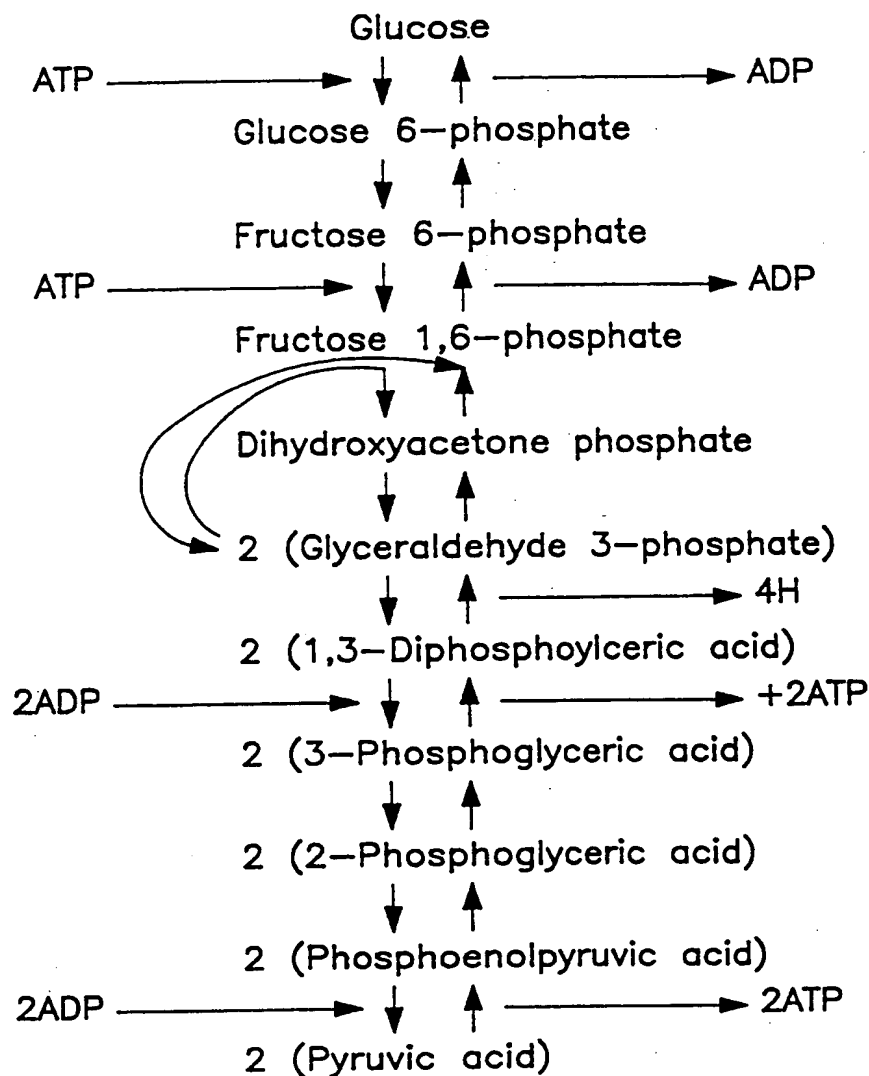


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NET REACTION PER MOLECULE OF GLUCOSE:
 $\text{Glucose} + 2\text{ADP} + 2\text{PO}_4^{---} \longrightarrow 2 \text{ Pyruvic acid} + 2\text{ATP} + 4\text{H} + \text{HEAT}$

FIG. 1

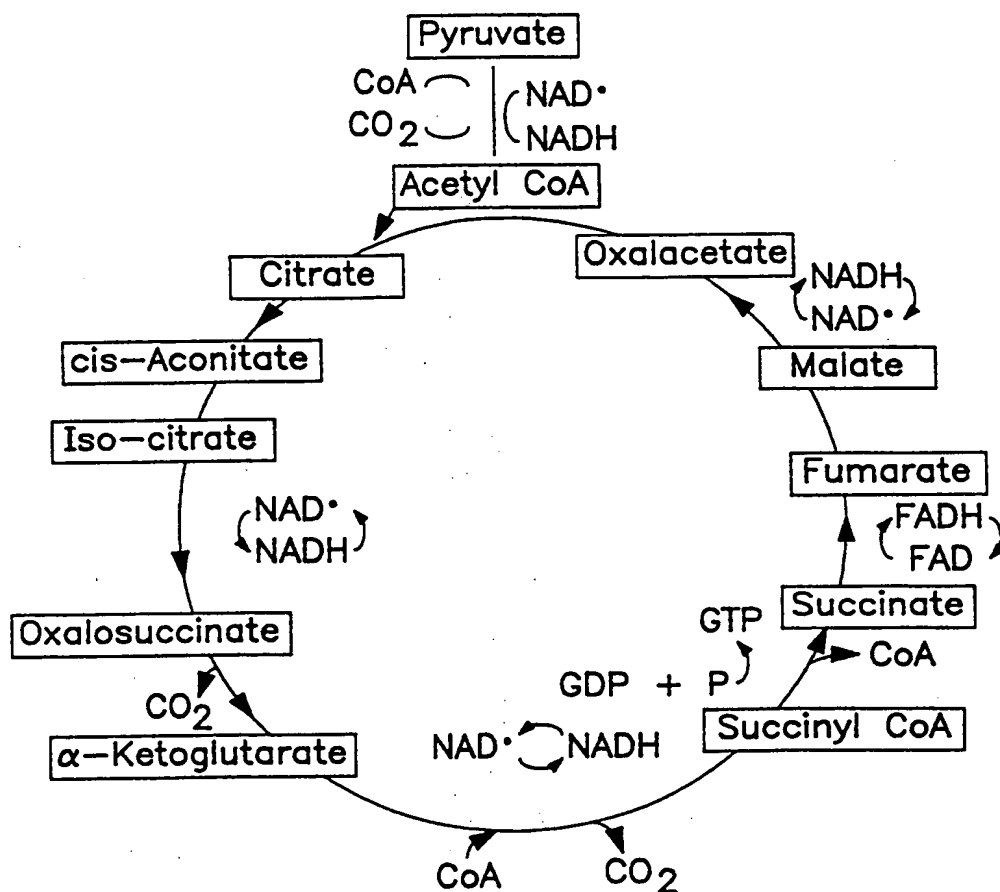
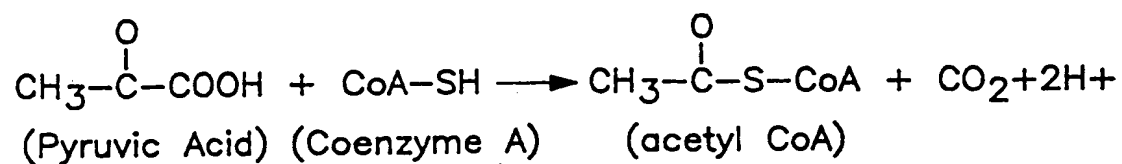


FIG. 2

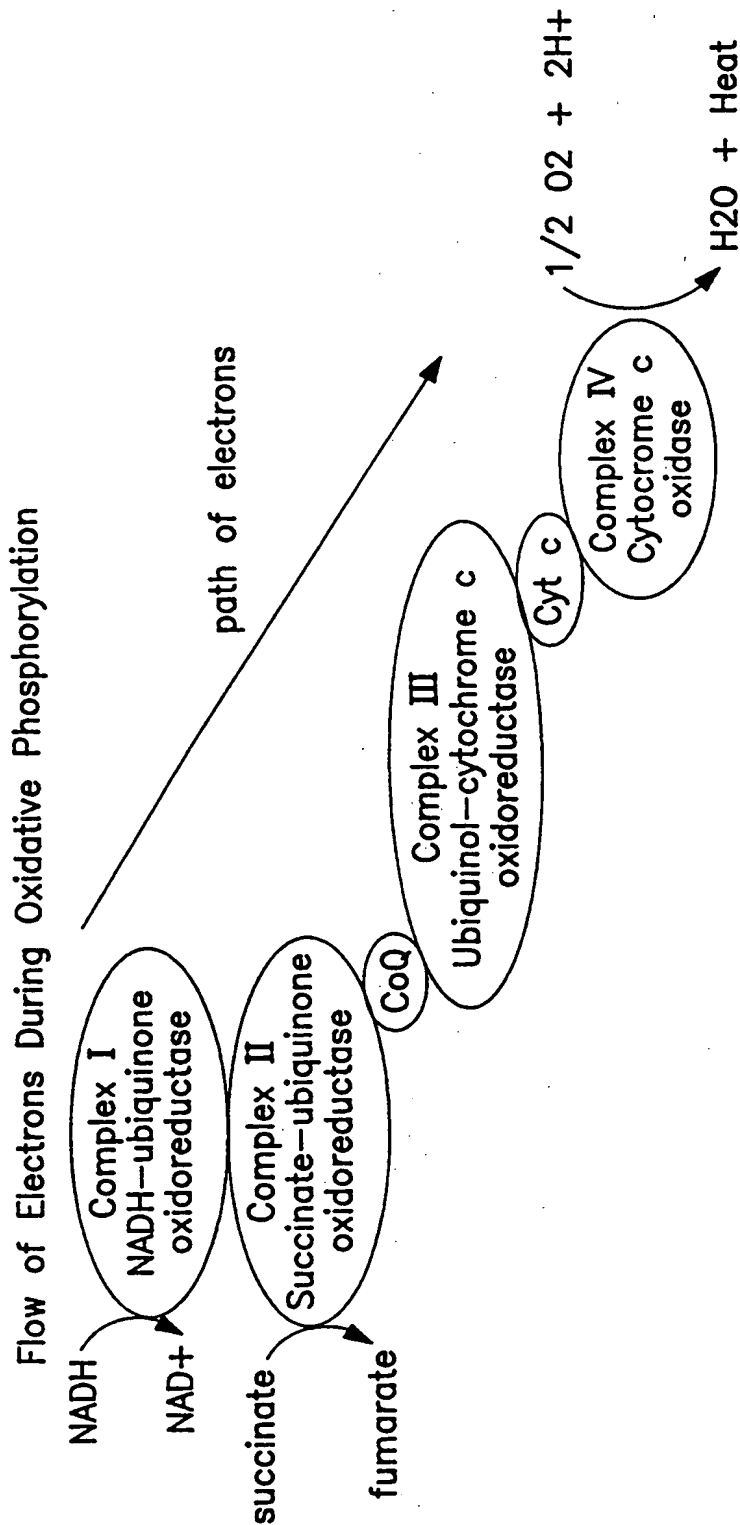


FIG. 3

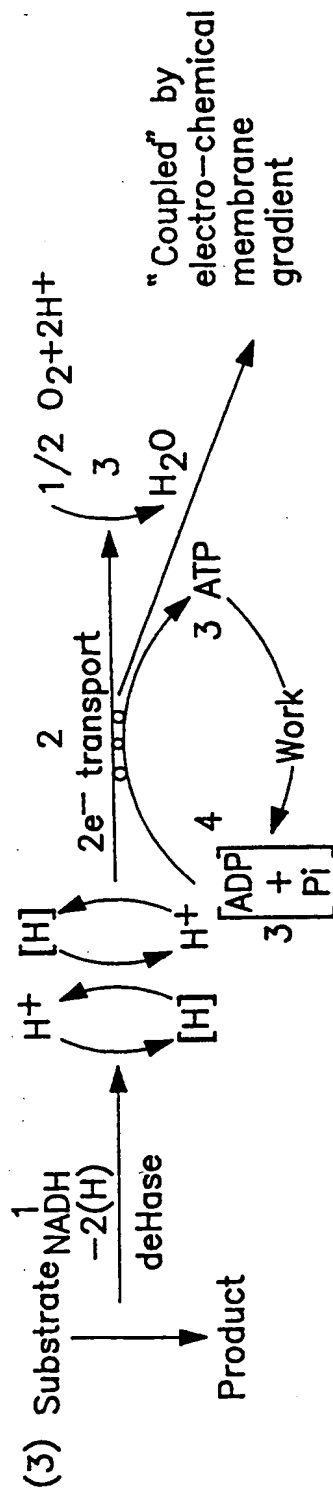
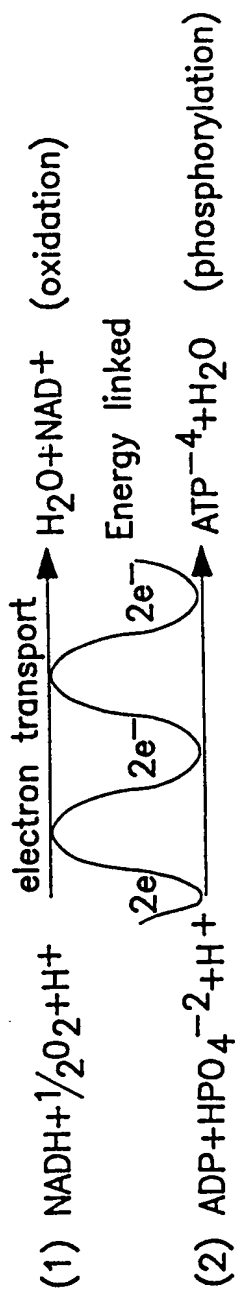


FIG. 4

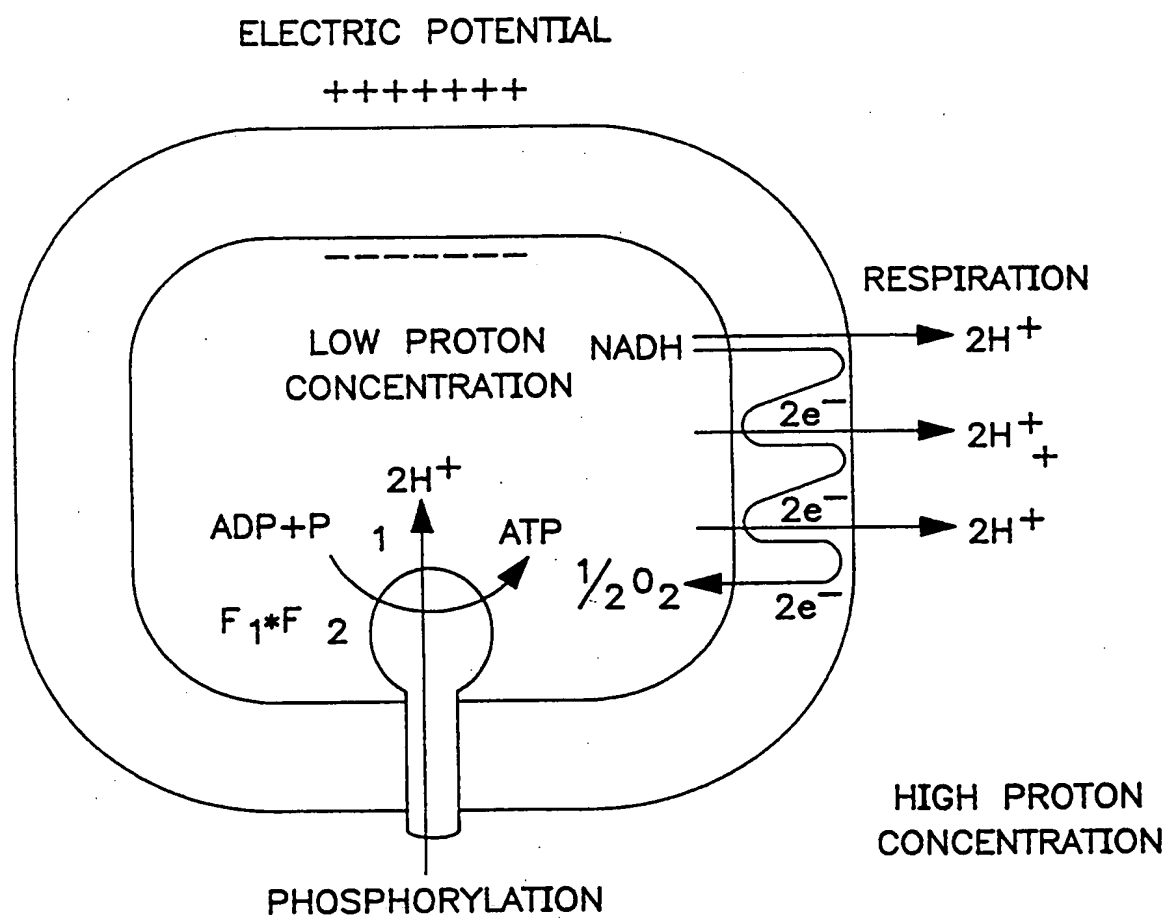


FIG. 5

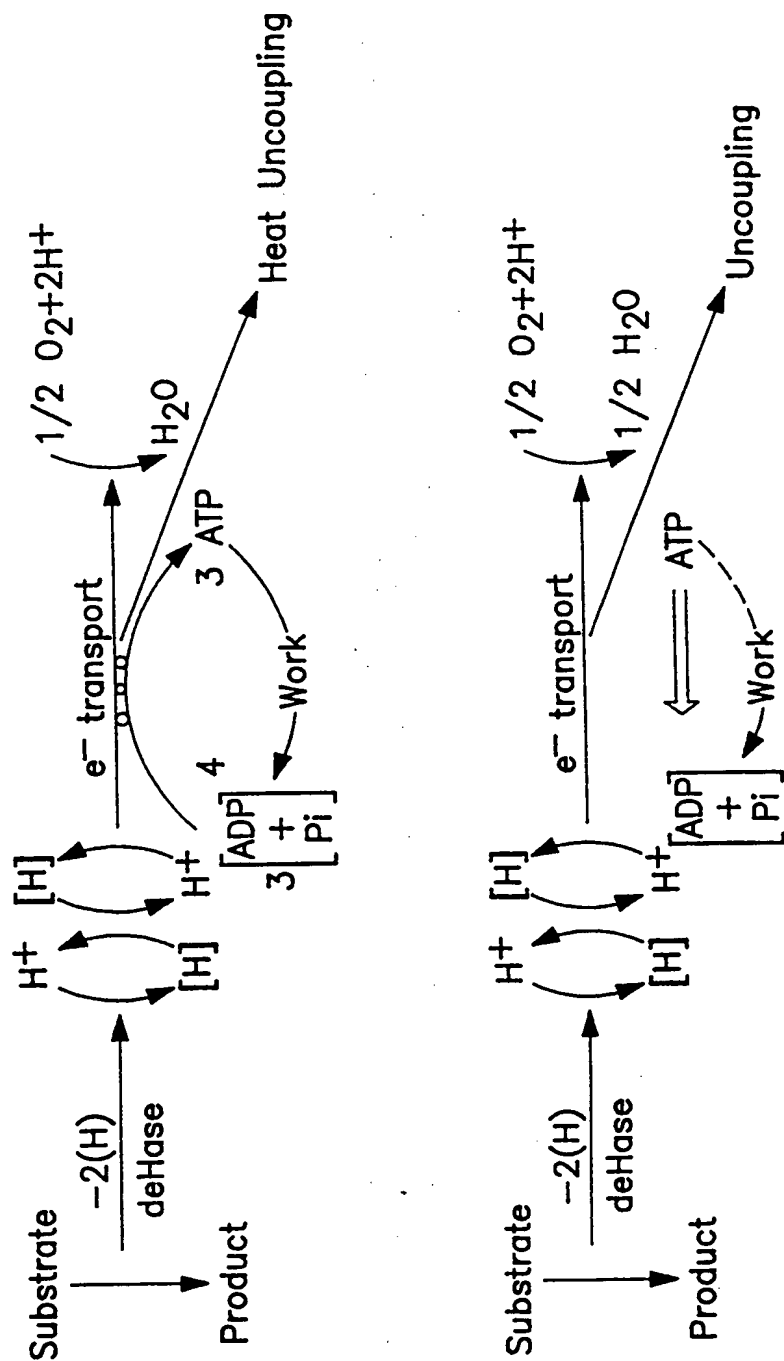


FIG. 6

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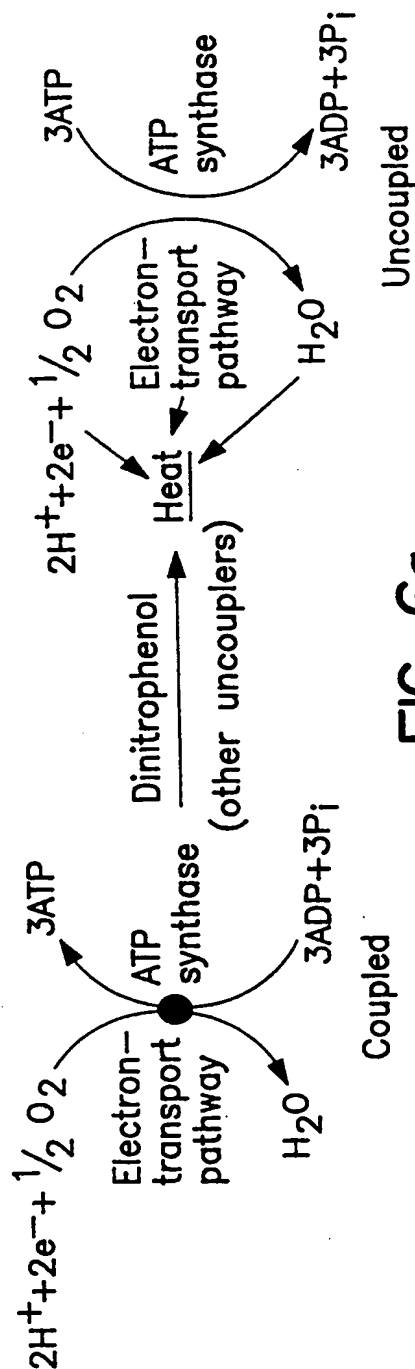
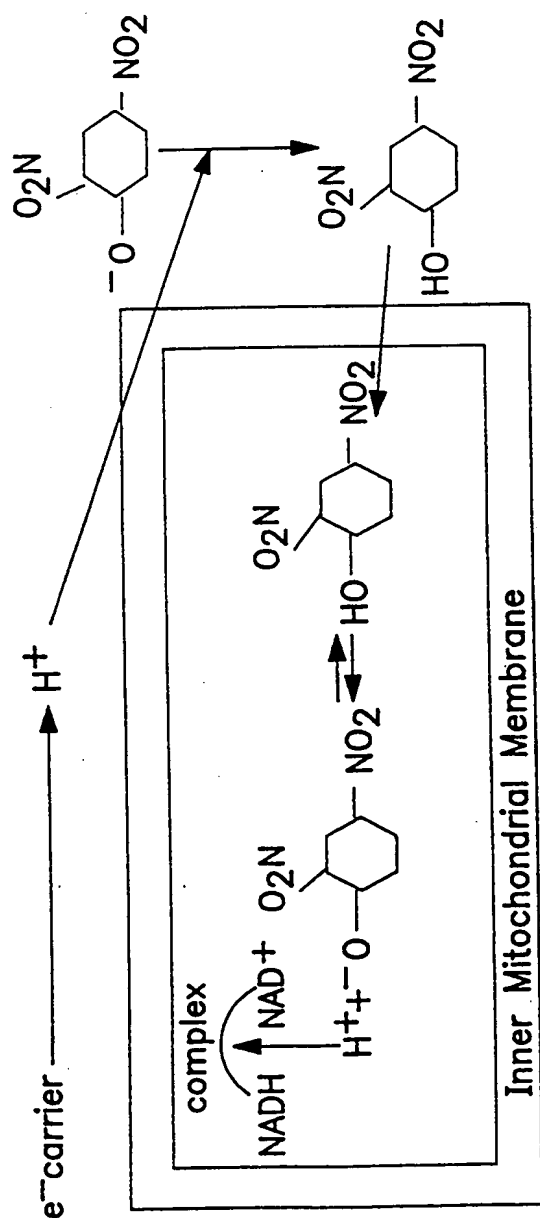


FIG. 6a

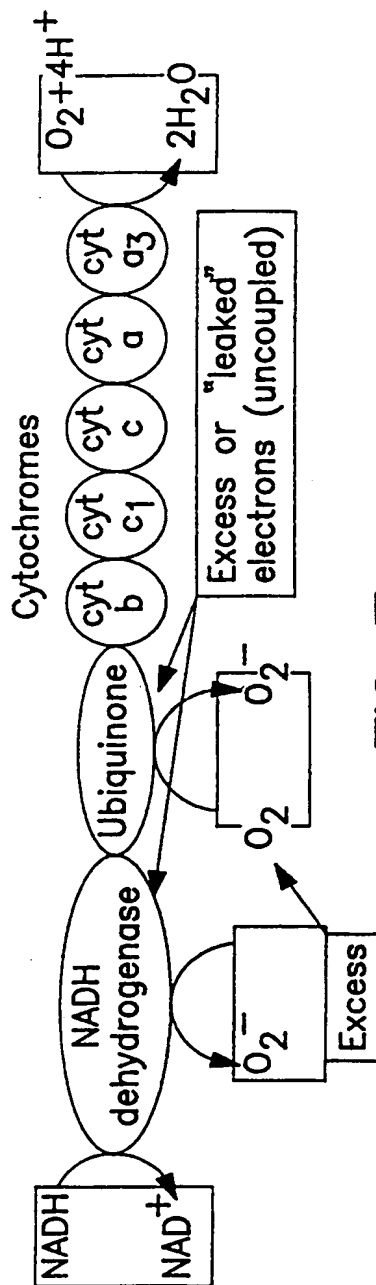


FIG. 7

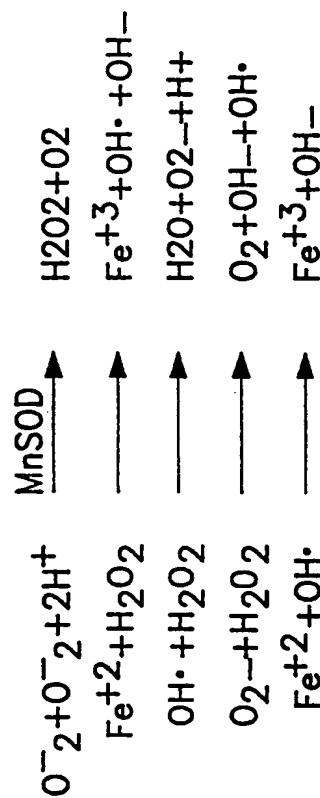


FIG. 7a

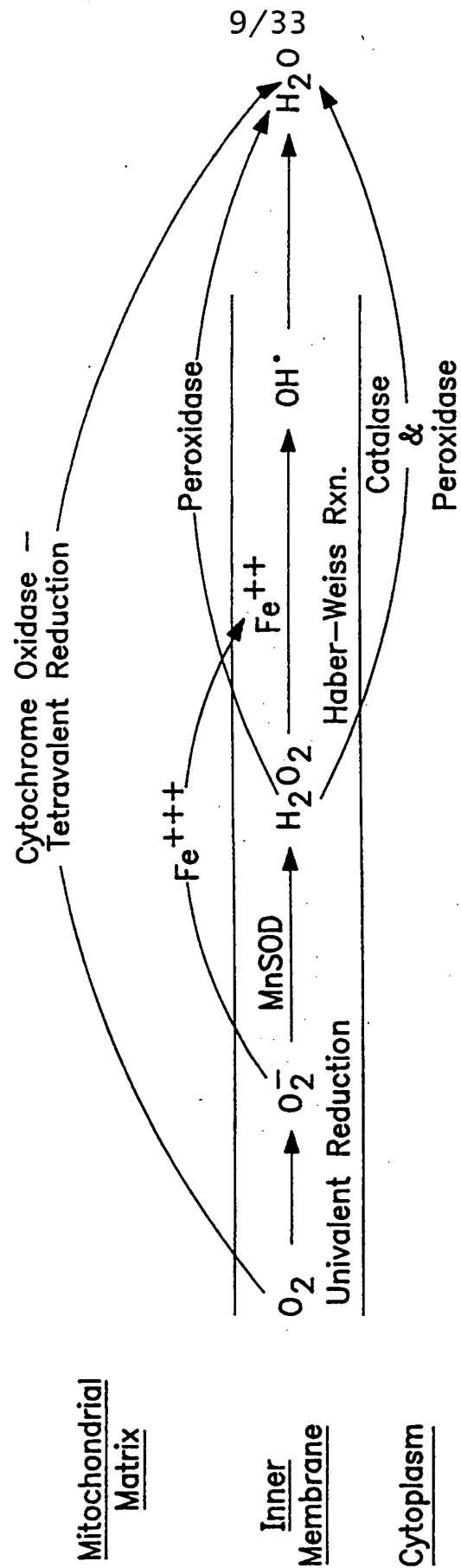


FIG. 7b

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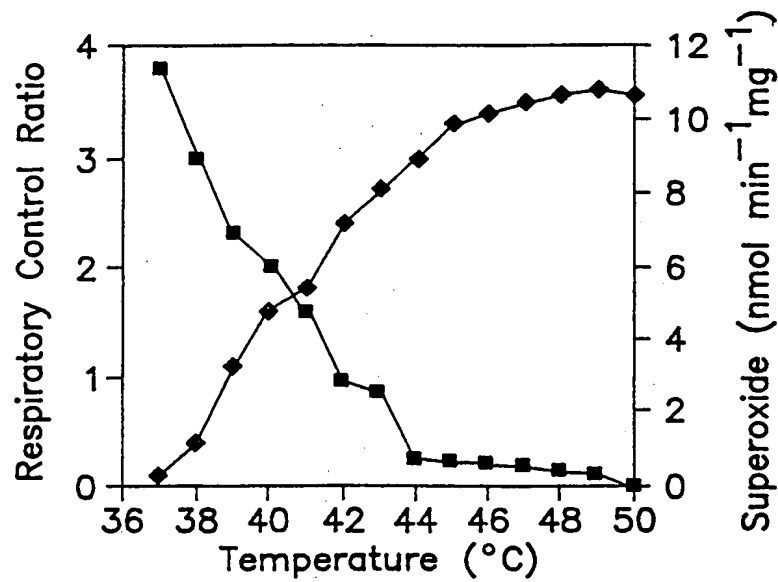


FIG. 8a

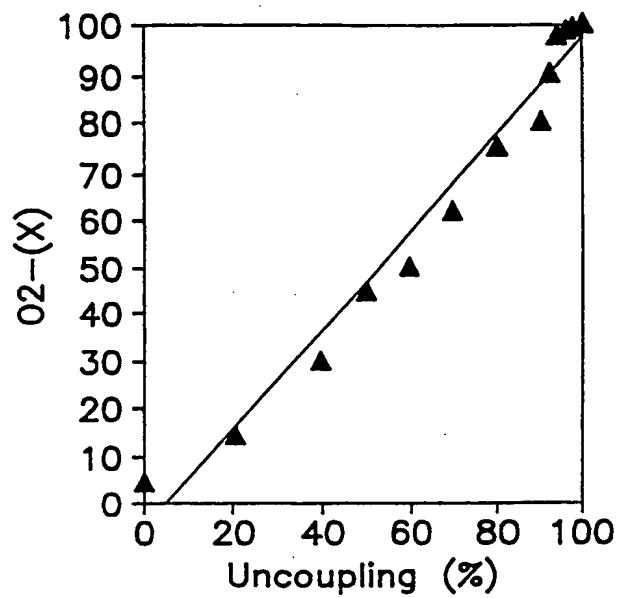


FIG. 8b

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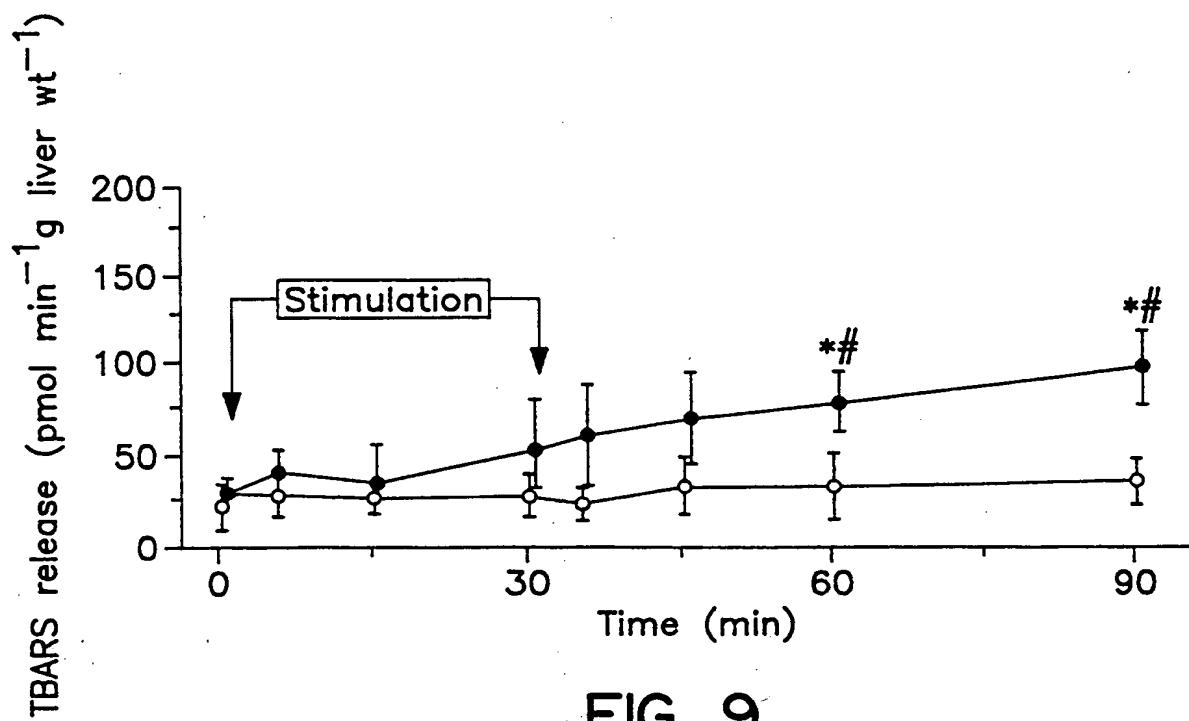


FIG. 9

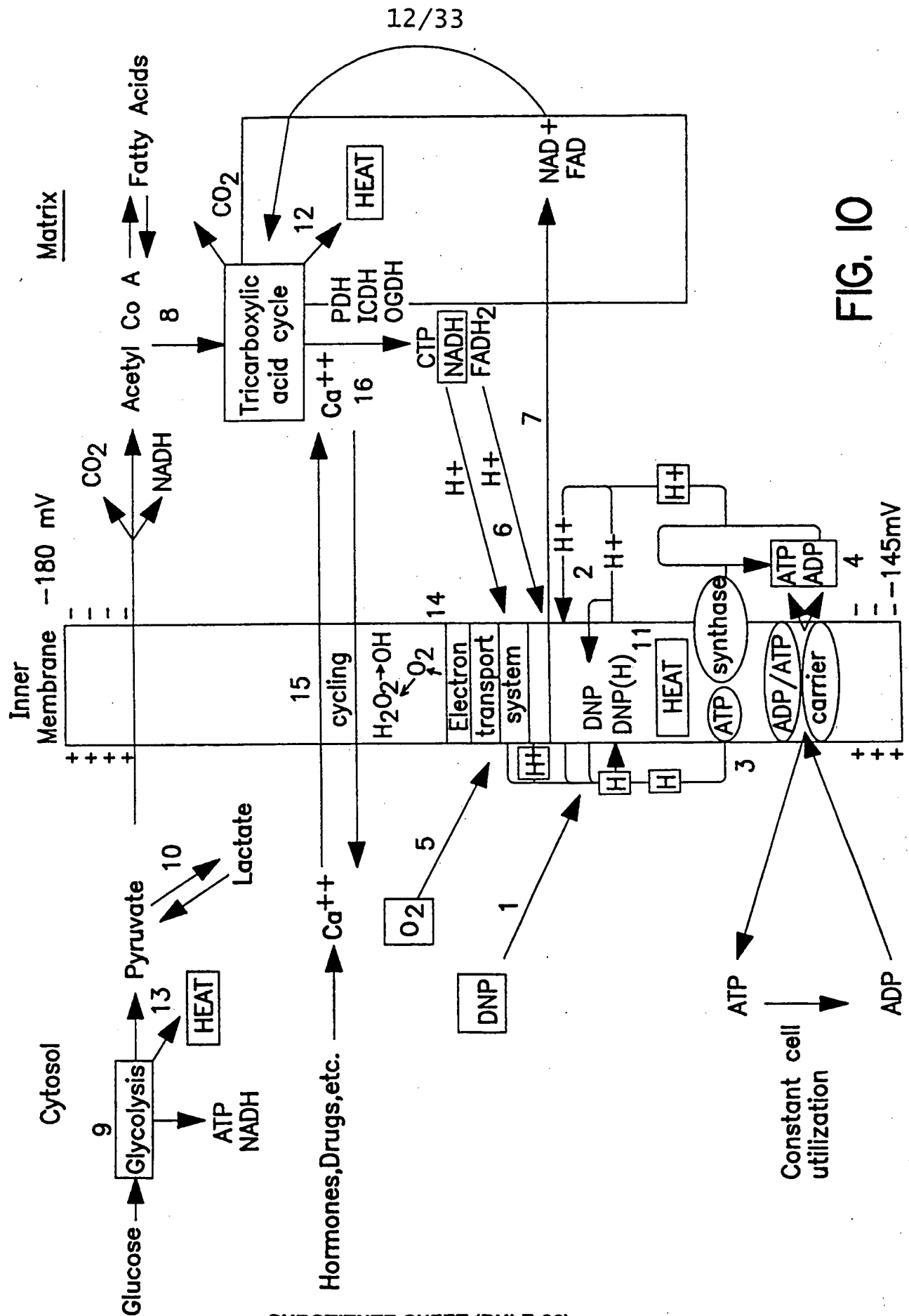


FIG. 10

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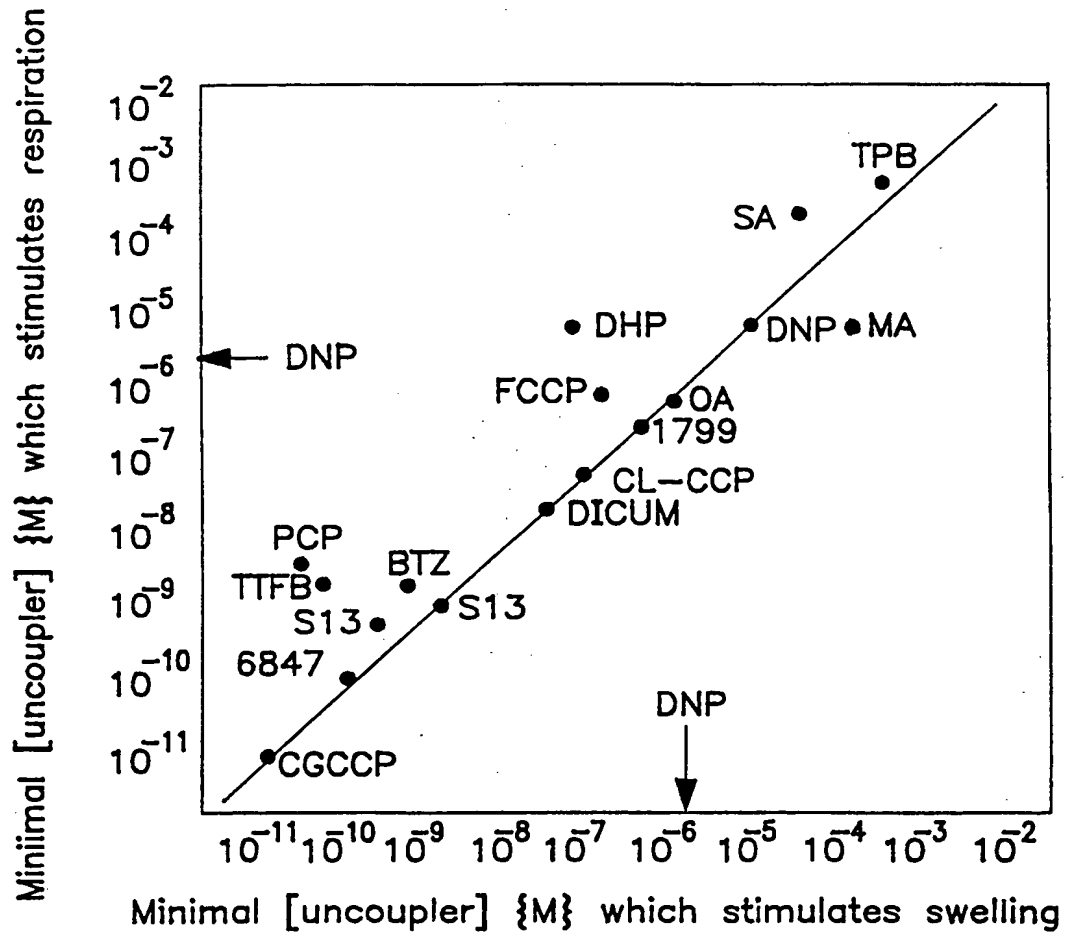


FIG. II

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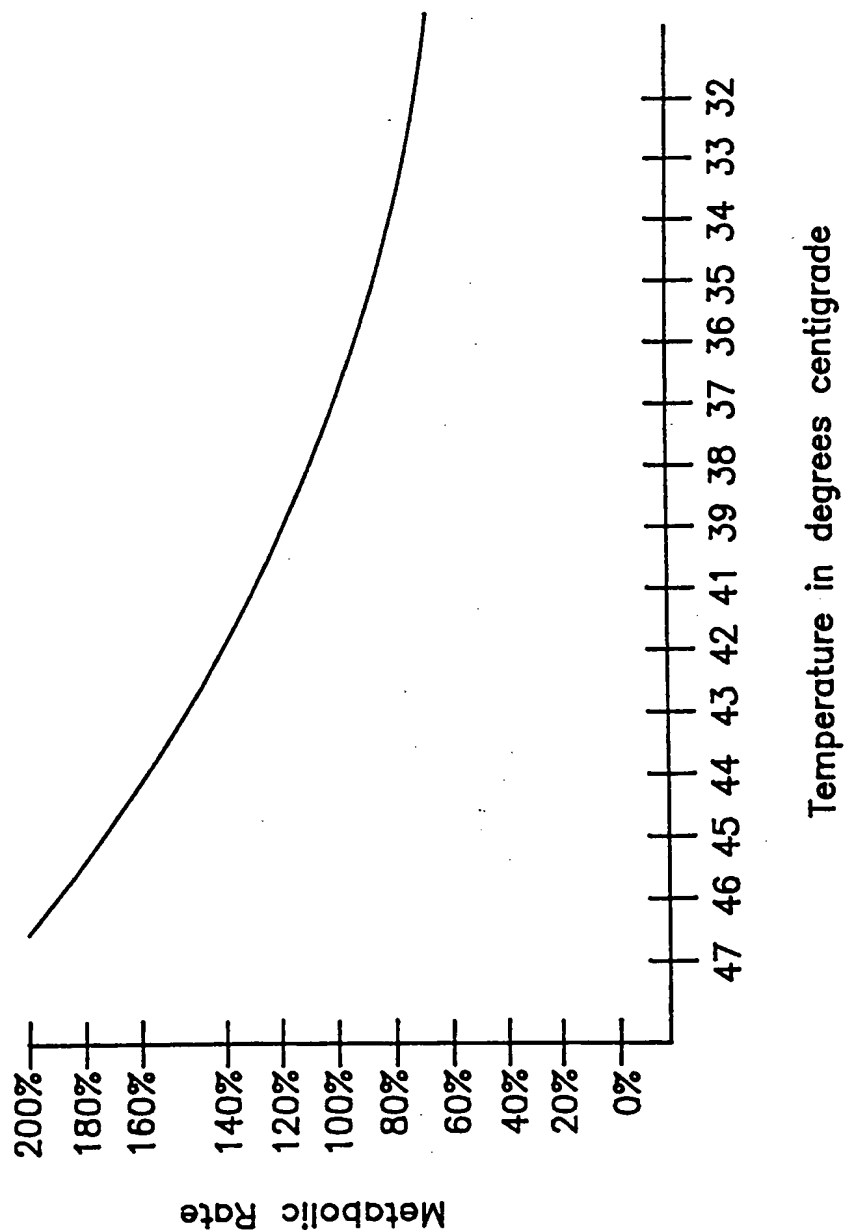


FIG. 11a

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<u>Tissue</u>	<u>Mass (kg)*</u>	<u>Blood Flow (L/min)*</u>	<u>Metabolic Rate (W)*</u>
Liver	2.6	1.5	18
Brain	1.4	0.75	17
Skeletal Muscle	31.0	1.2 to 24	17 to 350
Heart Muscle	0.3	0.25 to 31	10 to 31
Kidney	0.3	1.25	6
Skin	3.6	0.4 to 2.8	4 to 30

* Mean values under physiologic conditions.

FIG. 12

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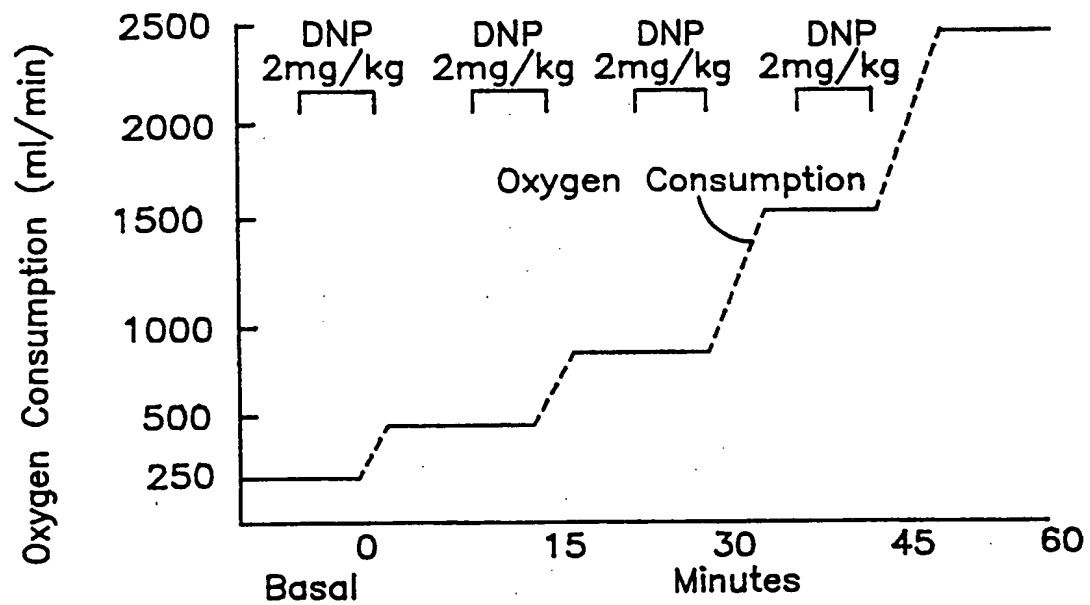


FIG. 13

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Patient Name: Sex:F		Wt: 68 kg	Ht: 165cm	BP 130/80	Resp:20			
TIME (min)	MEDICATION/PROCEDURE (type/dose/route)	*VO2 (ml/min)	*HEAT (Kcal/hr)	*TEMP (C)	*HR (BPM)	*VCO2 (ml/min)	*VE (L/min)	NOTES
(-5 to 0)	Body Wet Suit	240	70.2	37.1	88	210	7.1	Base mean over 5 minutes
0 to 2	*DNP-1mg/kg/IV							DNP infused over 2 minutes
10		260	75.8	37.4	86	300	7.6	All vital signs normal
20	DNP-2mg/kg/IV	340	99.1	37.2	86	398	8.8	DNP infused over 2 minutes
40	DNP-2mg/kg/IV	600	175	37.3	82	490	16.9	DNP infused over 2 minutes
60		710	207	39.1	94	690	18	
90		780	227	39.8	90	710	16.2	
120		760	221	40.2	92	680	17.1	
150	Body Wet Suit Removed	700	204.2	40.3	98	680	18.1	
160		680	198	40.1	105	670	16.9	Evaporative heat loss initiated
240		600	175	39.2	98	590	14.2	
300		500	145	38.4	96	490	14	
360	Final Reading	340	99.1	37.6	88	300	11.4	Vital signs stable
	*DNP=2,4-dinitrophenol							
	*VO2=oxygen consumption							
	Heat=VO2 x 4.862 Kcal							
	*Temp = degrees centigrade							
	*HR = heart rate (beats/min)							
	*VCO2=carbon dioxide produced							
	*VE=expired air volume (liters/min)							
	NOTE: 1 liter of oxygen consumed yields 4.862 kilocalories of heat at standard conditions							

FIG. 14

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	Patient Name:	Sex:M	Wt: 90kg	Ht: 177.8cm	BP 140/80	Resp:18				
TIME (min)	MEDICATION/PROCEDURE (type/dose/route)	VO2 (ml/min)	HEAT (Kcal/hr)	TEMP (C)	HR (BPM)	VCO2 (ml/min)	VE (L/min)	NOTES		
-60	diazepam, 10mg/PO									
-15	IV fluids, D5W/.5NS+7meq K+ placement of monitors							Dressed in modified wet suit Drip rate @ 12cc/kg/hr		
(-10 to 0)	baseline readings	300	87.5	37	76	180	6.5	mean recordings over 10 minutes		
0 to 3	DNP, 1mg/kg/IV	380	110	37.1	78	220	8.1	DNP infused over 2 min period		
10		410	119	37.3	76	380	12.4	complained of some IV "burning"		
20	DNP, 3mg/kg/IV	420	123	37	82	330	11.8	DNP infused over 2 min period		
40		620	180	37.2	84	680	17.8	stable 5 min post injection		
40 to 42	Glucagon, 0.5mg/kg/lvdrip/hr.	760	221	37.5	86	750	18.2	readings stabilized at 15 minutes		
50		800	236	37.8	90	790	18.9			
60 to 70	Glucagon, 1.0mg/kg/lvdrip/hr	810	250	38	94	840	21			
75 to 80	Glucagon 2.0mg/kg/lvdrip/hr	860	260	38.5	100	890	21.7	complaints of mild nausea		
90		910	265	39.1	110	920	26.2	no complaints		
100		880	256	39.6	112	970	26.1	states skin is "very warm"		
110		960	279	39.9	110	940	24.3			
120		880	256	40.1	112	980	25.2			
130		900	262	40.3	115	850	26.5			
140		890	260	40.1	112	1,050	27.8	lower extremity uncovered		
150		880	256	40.2	100	950	25.8	wet suit opened		
160	Glucagon discontinued	830	242	40.1	110	900	26.7	Total dose: glucagon=3mg		
170	IVs discontinued, monitors removed	810	236	39.5	100	880	24.5			
420	Oral tube for VO2	360	105	37.2	88	400	8.1	All vital signs normal		

FIG. 15

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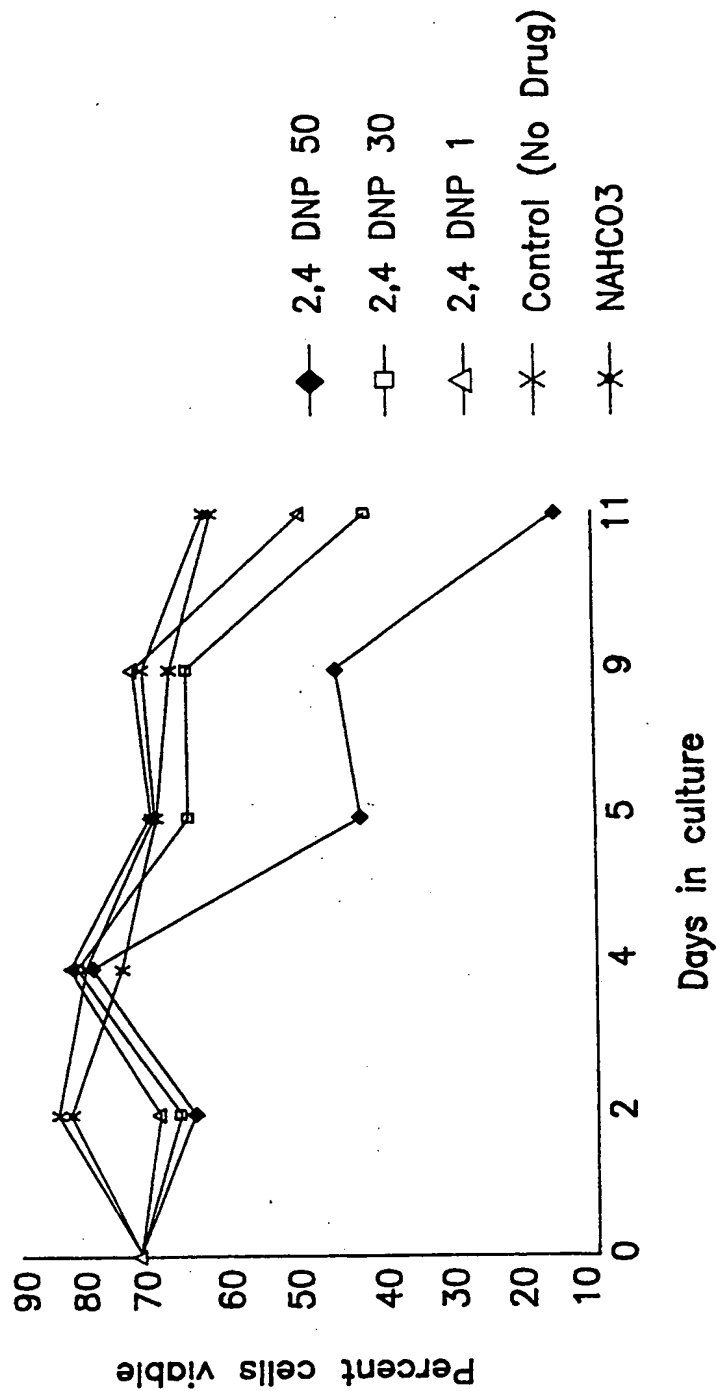


FIG. 16

	Patient Name:	Sex:M	Wt:60kg	Ht: 155cm	BP128/72	Resp:20			
TIME	MEDICATION/PROCEDURE		VO2	HEAT	TEMP	HR	VCO2	VE	NOTES
(min)	(type/dose/route)		(ml/min)	(Kcal/hr)	(C)	(BPM)	(ml/min)	(L/min)	
	dressed in cold water dry suit								
(-5 to 0)	Baseline		300	87.5	38.1	85	275	5.9	oral breathing tube used/room air
0 to 2	DNP, 2mg/kg/IV		320	99	38.2	86	290	6.2	DNP infused over a 2 min period
20			340	99.1	38.1	88	300	8.1	
30			380	110	38.6	92	350	9.6	
40 to 42	DNP, 2mg/kg/IV		340	99	38.8	90	360	10	DNP infused over a 2 min period
60			610	178	39.4	90	390	11.4	BP: falls to 110/50
90			630	183	39.5	92	610	15.2	BP: 105/60
92	Levophed, 1ugm/min/IVdrip		650	189.5	39.5	92	630	21	BP: 100/60
96			790	230	39.8	102	770	17.4	BP: 110/60
100			850	247	40.1	115	830	16.7	BP: 130/80
115	Levophed decreased to 0.5ugm/min		1,000	291	41.5	110	1,200	25.8	Stable BP @ 130/80
125			980	285	41.6	108	1,040	26.6	Rt. Lower extremity uncovered
160			880	256	41.1	110	990	27.2	
180			960	279	41.5	112	1,000	29.8	
220			1,000	291	41.3	110	1,100	28.3	
230			800	233	41.1	105	920	27.8	VO2 falling
240			760	221	41.3	108	830	21.1	VO2 continues to fall
242 to 244	DNP, 1mg/kg/IV		890	260	41.4	110	980	24.8	DNP infused over a 2 min period
280			1,080	315	41.6	115	1,280	28.6	Both lower extremities uncovered
300			1,000	291	41.3	110	1190	29.5	
320	Levophed stopped		1,100	320	41.1	108	1240	31.1	
360			950	277	40.9	98	1,040	29.2	cold water dry suit
390			910	265	39.2	94	990	28.5	
420	Monitors removed		830	242	38.6	92	920	16.8	
450	oral breathing tube		420	123	37.8	88	510	10.2	
480			340	99.1	37.5	90	440	8.9	Vital signs within normal limits

FIG. 17

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	Patient Name:	Sex:F	Wt:60kg	Ht: 160cm	BP130/70	Resp:20	VCO2 (ml/min)	VE (L/min)	NOTES
TIME (min)	MEDICATION/PROCEDURE (type/dose/route)		VO2 (ml/min)	HEAT (Kcal/hr)	TEMP (C)	HR (BPM)			
(-240)	alprazolam, 2mg/PO								to calm anxiety
(-20)	dressed in dry water immersion suit								dressed
(-15)	IV fluids, D5W1/2NS+7meg K+								Monitors & Foley attached
(-10 to 0)	Baseline Readings								
0 to 2	DNP, 1mg/kg/IV		220	64.2	37.3	86	190	5.2	DNP infused over a 2min period
20			230	67	37.3	90	200	5.5	
20 to 22			250	72.9	37.2	88	230	6.3	
30	DNP, 2mg/kg/IV		250	72.9	37.8	86	220	6.3	DNP infused over a 2min period
50	DNP, 1mg/kg/IV		310	90.4	38.4	86	290	10.4	
50 to 54			380	110	38.9	90	350	14	
70	DNP, 1.0mg/kg/IV		400	116	39.5	90	390	14	DNP infused over a 2min period
80			600	175	40.2	110	590	18	Patient became briefly agitated
90			570	166	40.8	98	550	18	
95 to 98	Dopamine Drip/3mcg/kg/min		500	145	40.1	100	510	15	20 sec readings show fall in VO2
100			520	151.6	40.2	115	500	15.8	
110			630	183	40.3	115	610	18	
150			680	198.2	40.2	110	690	20	
180			710	207	40.5	110	700	21	
250			680	198.2	40.6	115	690	19	Dopamine discontinued
255	Insulating Suit open		650	189	40.1	110	660	19	
280			600	175	39.6	112	610	22	patient complains of fatigue
320			430	125	39.1	115	410	14	
400			340	99.1	37.8	92	330	12	
401 to 405	chills & rigors								
500 to 610	IV fluids, dopamine 2mcg/kg/min		380	110	38.7	100	270	15	IV fluids & observation
	Symptoms subside		250	72.8	37.8	90	230	7	Jarisch-Herxheimer?

FIG. 18

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Patient Name:	Sex:F	Wt:55kg	Ht: 154cm	BP100/50	Resp:22	VE	NOTES
TIME (min)	MEDICATION/PROCEDURE (type/dose/route)	VO2 (ml/min)	HEAT (Kcal/hr)	TEMP (C)	HR (BPM)	VCO2 (ml/min)	
(-50 to -40)	covered in water soaked blanket						
(-40 to -30)	polyethylene wrap around blanket						
(-30 to -10)	Carboplatin-45mg/milomycin-24mg (total dose given by IV infusion)						3 units packed RBC-24 hr prior IV fluids, D5W1/2NS+10meq K+
(-10 to 0)		230	67	37.6	90	200	Mean values over 10 min period
0 to 1	mephenteramine sulfate/30mg/IM	250	72.9	37.7	85	220	
10		320	93.3	37.9	96	290	BP increased to 140/88
15		340	99.1	38.1	98	300	BP stable at 140/90
20 to 22	DNP, 1.0mg/kg/IV	380	110	38.2	100	350	DNP infused over a 2 min period
23		450	131.2	38.2	105	440	
28		400	116.6	38.8	105	510	
30		430	125.4	39	110	500	
40 to 42	DNP, 0.5mg/kg/IV	480	139.9	39.4	110	560	DNP infused over a 2 min period
50		520	151.6	39.9	115	540	
60	DNP, 0.5mg/kg/IV	640	186.6	40.3	112	660	DNP infused over a 2 min period
70		660	192.4	40.8	115	720	
80	DNP, 0.5mg/kg/IV	780	227.4	40.9	110	880	DNP infused over a 2 min period
90		800	233	41.2	120	850	
100		820	239	41.4	125	810	
120		790	230.4	41.5	115	740	
130		800	233	41.4	110	850	
131 to 133	DNP, 0.5mg/kg/IV	820	239	41.4	115	790	DNP infused over a 2 min period
150		810	236	41.4	112	840	
160		800	233	41.4	120	690	
170		850	247	41.2	115	870	
180	Doxifluridine, 600mg/PO	820	239	41.3	110	890	
200		820	239	41.4	115	850	
210		790	230.4	41.2	102	770	IV fluids discontinued
240		630	183	38.6	100	550	
260		420	123	37.5	102	395	Monitors removed

FIG. 19

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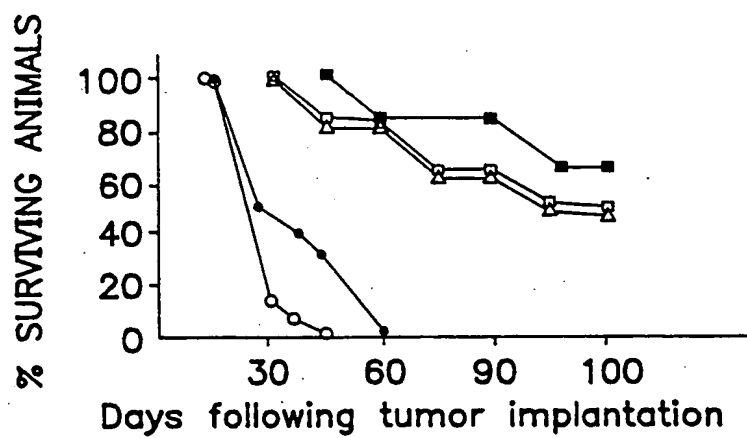


FIG. 20

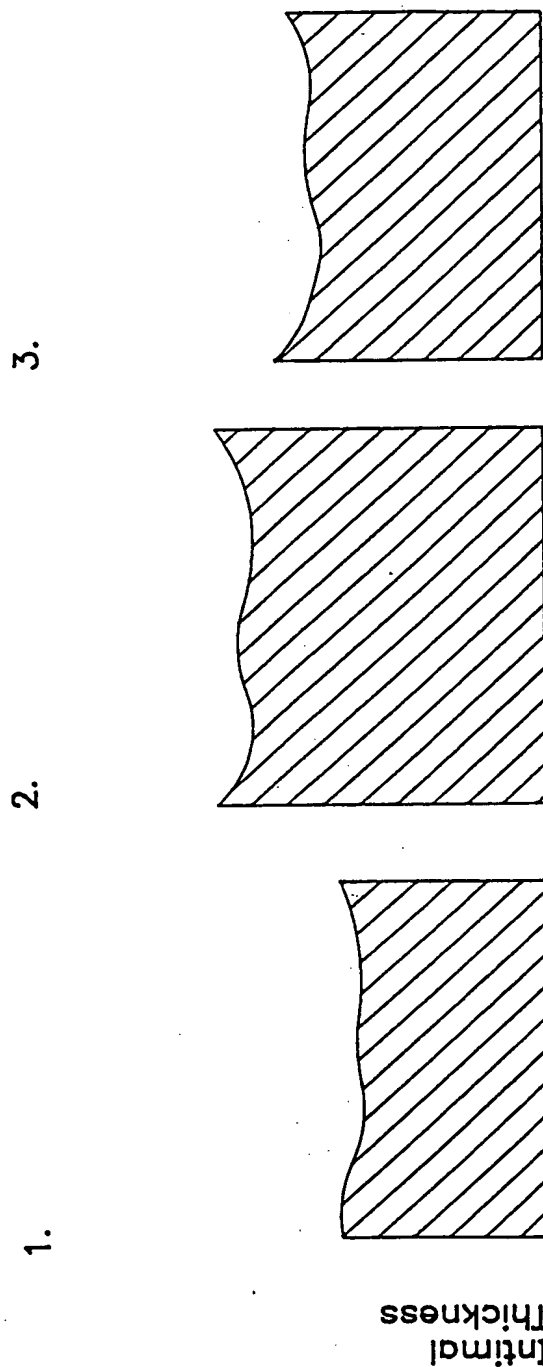


FIG. 21

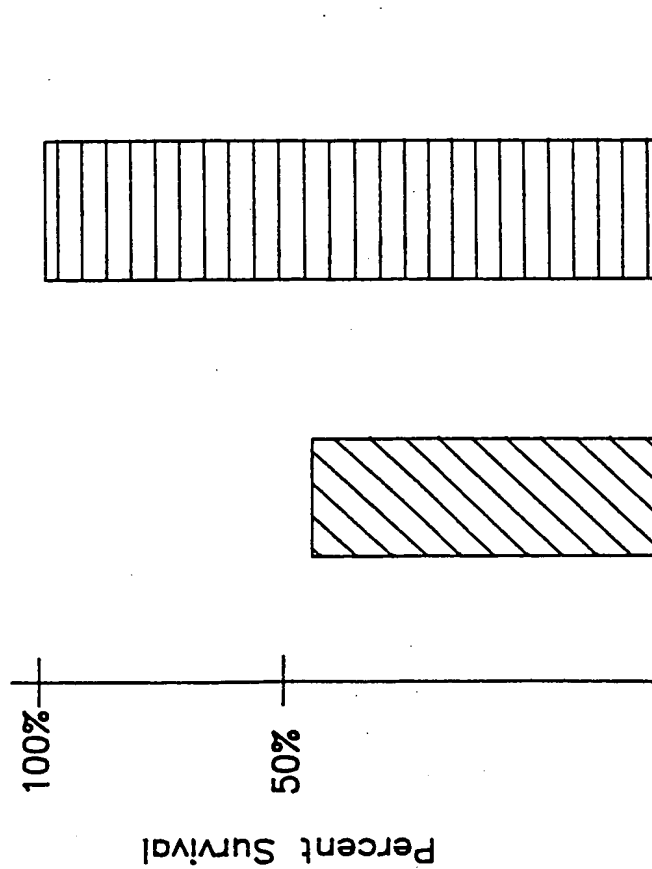


FIG. 22

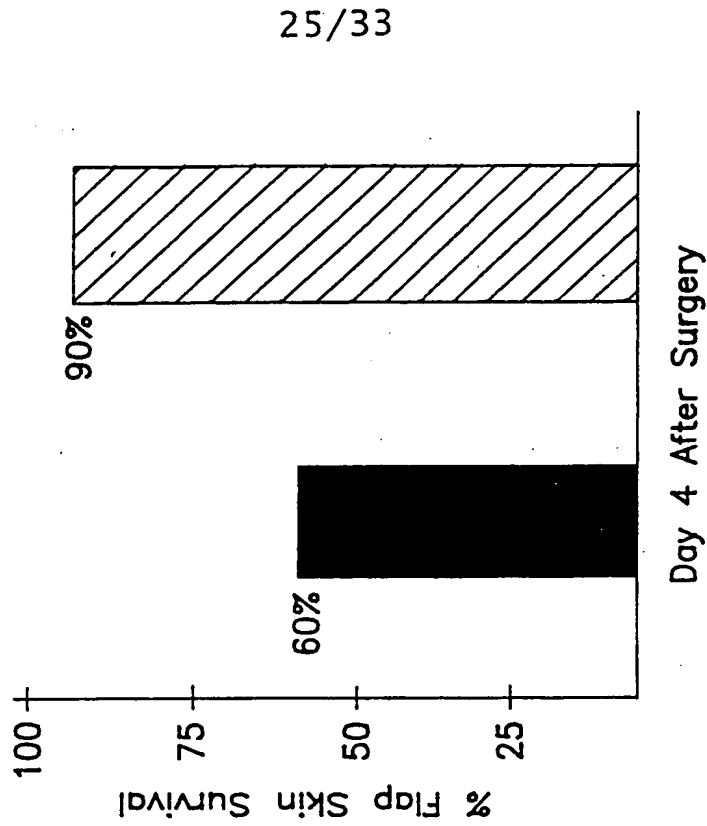


FIG. 23

FIG. 25

[illegible]

FIG. 26

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Treatment Period*	Serum PSA level* (ng/ml)	Acid Phosphatase (U/L)	Biopsy*	Clinical Findings
0	58	1.2	High grade adeno-carcinoma, Gleason grade 8	Bone pain, lack of appetite, Karnofsky score of 6.
Day 6	68	1.6	—	Decrease in bone pain
Day 8	125	1.6	—	Increased appetite, decrease bone pain.
Day 14	88	1.4	—	Off all pain meds. Marked increase in appetite.
6 weeks	30	1	—	Karnofsky score of 7. Remains pain free
10 weeks	18	0.6	over 95% tumor necrosis, rare intact acini; cyst-like structures.	Karnofsky score 8. Pain free
12 weeks	12	0.6	—	Gained 8.2kg weight. Pain free
4 months	6.5	0.65	Extensive fibrosis. Increase in stromal cells. Occasional tumor cells with reduced cytoplasm	Total of 9.3kg of weight gain. Pain free. Karnofsky score of 9

*Treatment period – DNP given IV every other day x 30, repeated after 2 weeks for additional 30 days; then, 250mg/orally/2 times daily for 5 days and, recycled after no DNP for 2 days for a total period of 4 months.

*PSA = Prostatic Specific Antigen

*Biopsy – Significant comments by pathologist

FIG. 27

FIG. 28

FIG. 28

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Treatment Period	HCV-RNA* (copies/ml)	AST* (IU/L)	ALT* (IU/L)
0	5.8×10^6	78	85
48 hours	4.6×10^4	400	610
14 days	non-detectable	380	570
21 days	non-detectable	100	78
18 months	non-detectable	45	34

*HCV-RNA – Roche polymerase chain reaction methodology

*AST – aspartate aminotransferase

*ALT – alanine aminotransferase

FIG. 29

FIG. 30

